



DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

[Docket No. FWS-R4-ES-2022-0031; FF04E00000–234–FXES11130400000]

Marine Mammal Protection Act; Stock Assessment Reports for Two Stocks of West Indian Manatee

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of availability; response to comments.

SUMMARY: In accordance with the Marine Mammal Protection Act of 1972, as amended, we, the U.S. Fish and Wildlife Service, after consideration of comments received from the public, have revised the marine mammal stock assessment reports (SAR) for two West Indian manatee stocks, the Florida manatee stock (*Trichechus manatus latirostris*) and the Puerto Rico stock of the Antillean manatee (*Trichechus manatus manatus*). We now make both final revised SARs available to the public.

ADDRESSES: *Document Availability:* You may obtain a copy of the stock assessment reports for the Florida manatee stock and Puerto Rico stock of Antillean manatee by either of the following methods:

- Internet: <https://www.regulations.gov>. Search for FWS-R4-ES-2022-0031.
- Write to or call (during normal business hours from 8 a.m. to 4:30 p.m., Monday

through Friday) the appropriate individual as described under **FOR FURTHER**

INFORMATION CONTACT.

FOR FURTHER INFORMATION CONTACT: *Florida manatee stock:* Lourdes Mena, USFWS Florida Ecological Services Field Office, 7915 Baymeadows Way, Suite 200, Jacksonville, FL, by telephone (904–731–3134), or by email (Lourdes_Mena@fws.gov).

Puerto Rico manatee stock: Edwin Muñiz, USFWS Caribbean Ecological

Services Field Office, P.O. Box 491, Boquerón, PR, by telephone (786-244-0081), or by email (Edwin_Muniz@fws.gov).

Individuals in the United States who are deaf, deafblind, hard of hearing, or have a speech disability may dial 711 (TTY, TDD, or TeleBraille) to access telecommunications relay services. Individuals outside the United States should use the relay services offered within their country to make international calls to the point-of-contact in the United States.

SUPPLEMENTARY INFORMATION: We announce the availability of the final revised stock assessment reports (SARs) for the Florida manatee stock (*Trichechus manatus latirostris*) and the Puerto Rico stock of the Antillean manatee (*Trichechus manatus manatus*).

Background

Under the Marine Mammal Protection Act of 1972, as amended (MMPA; 16 U.S.C. 1361 *et seq.*) and its implementing regulations in the Code of Federal Regulations (CFR) at 50 CFR part 18, the U.S. Fish and Wildlife Service (Service) regulates the taking; import; and, under certain conditions, possession; transportation; purchasing; selling; and offering for sale, purchase, or export, of marine mammals. One of the goals of the MMPA is to ensure that stocks of marine mammals occurring in waters under U.S. jurisdiction do not experience a level of human-caused mortality and serious injury that is likely to cause the stock to be reduced below its *optimum sustainable population level* (OSP). The OSP is defined under the MMPA as the number of animals which will result in the maximum productivity of the population or the species, keeping in mind the carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element (16 U.S.C. 1362(9)).

To help accomplish the goal of maintaining marine mammal stocks at their OSPs, section 117 of the MMPA requires the Service and the National Marine Fisheries Service

(NMFS) to prepare a SAR for each marine mammal stock that occurs in waters under U.S. jurisdiction. A SAR must be based on the best scientific information available; therefore, we prepare it in consultation with an independent Scientific Review Group (SRG) established under section 117(d) of the MMPA. Each SAR must include:

1. A description of the stock and its geographic range;
2. A minimum population estimate, current and maximum net productivity rate, and current population trend;
3. An estimate of the annual human-caused mortality and serious injury by source and, for a strategic stock, other factors that may be causing a decline or impeding recovery of the stock;
4. A description of commercial fishery interactions;
5. A categorization of the status of the stock; and
6. An estimate of the *potential biological removal* (PBR) level.

The MMPA defines the PBR as “the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its OSP” (16 U.S.C. 1362(20)). The PBR is the product of the minimum population estimate of the stock (N_{\min}); one-half the maximum theoretical or estimated net productivity rate of the stock at a small population size (R_{\max}); and a recovery factor (F_r) of between 0.1 and 1.0, which is intended to compensate for uncertainty and unknown estimation errors. This can be written as:

$$\text{PBR} = (N_{\min})(\frac{1}{2} \text{ of the } R_{\max})(F_r)$$

Section 117 of the MMPA also requires the Service and the NMFS to review the SARs (a) at least annually for stocks that are specified as strategic stocks, (b) at least annually for stocks for which significant new information is available, and (c) at least once every 3 years for all other stocks. If our review of the status of a stock indicates that it has changed or may be more accurately determined, then the SAR must be revised

accordingly.

A *strategic stock* is defined in the MMPA as a marine mammal stock for which the level of direct human-caused mortality exceeds the PBR level; which, based on the best available scientific information, is declining and is likely to be listed as a threatened species under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*), within the foreseeable future; or which is listed as a threatened or endangered species under the ESA, or is designated as depleted under the MMPA (16 U.S.C. 1362(19)).

Stock Assessment Report History for Two Stocks of West Indian Manatee

The SARs for the Florida and Puerto Rico stocks of the West Indian manatee were last revised in 2014. Because the West Indian manatee is listed as a threatened species under the ESA, both stocks are considered strategic. Therefore, the Service reviews the stock assessment annually. If, based on our annual review, we determine that new information (such as new abundance estimates) indicates that a revision is warranted, we will propose a revision. In 2020, based on new information that had become available, the Service initiated revision of the SARs, and once completed, presented them for review to the SRG. Subsequent to that review, the Service published a notice in the *Federal Register* informing the public of the availability of these draft revised SARs and seeking public comment (87 FR 47445, August 3, 2022). These final revised SARs incorporate the comments and suggestions provided to the Service by the SRG and the public, as appropriate.

Summary of Revised Stock Assessment Reports for Two Stocks of West Indian Manatee

The following table summarizes some of the information contained in the revised SARs for the Florida and Puerto Rico stocks of the West Indian manatee, which includes the stocks' N_{\min} , R_{\max} , F_r , PBR, annual estimated human-caused mortality and serious injury, and status.

In March 2021, the Service declared an Unusual Mortality Event (UME) along the Atlantic coast of Florida for the Florida stock. The event, which began in December 2020 and is ongoing, is associated with phytoplankton blooms and seagrass loss in the Indian River Lagoon. The effect of the UME on population size and trend is not known at this time but will be assessed in the future based on new abundance estimates that are being developed and additional population modeling. We are working closely with our conservation partners to monitor and address the UME. No UME has been declared for the Puerto Rico stock.

SUMMARY—REVISED STOCK ASSESSMENT REPORTS FOR THE FLORIDA AND PUERTO RICO STOCKS OF WEST INDIAN MANATEE

West Indian Manatee Stock	N_{MIN}	R_{MAX}	F_R	PBR	Annual Estimated Human-caused Mortality (5-year average)	Stock Status
Florida manatees	8,237	0.062	0.5	127.67	144.8 (Years 2014–2018)	Strategic
Antillean manatees (Puerto Rico)	319	0.04	0.4	2.55	4 (Years 2015–2019)	Strategic

Response to Public Comments

We received comments on the draft SAR for the Florida stock from the Florida Fish and Wildlife Conservation Commission (FWC) and the Center for Biological Diversity. No comments were submitted on the draft SAR for the Puerto Rico stock. We present substantive issues raised in those comments that are pertinent to the SAR for the Florida stock, edited for brevity, along with our responses below.

Comments Specific to the Stock Assessment Report for the Florida Stock

Comment 1: The population estimate of 8,810 Florida manatees, established from Hostetler *et al.* (2018), is likely a gross overestimate of the number of Florida manatees remaining in the wild today. As the SAR recognizes, the ongoing Unusual Mortality Event (UME) is not incorporated into this estimate. Though efforts are underway to produce an updated abundance estimate, this SAR should, at a minimum, incorporate the known deaths from the UME area attributable to starvation.

Response: The draft SAR discussed the basis for the population estimate, acknowledged the ongoing UME, and reported the preliminary data on the number of deaths that have occurred since the UME began. As discussed in the draft SAR, we noted that the effect on the overall population size was currently unknown. We have updated the final revised SAR to include more recent preliminary data on the number of deaths in the UME area and additional discussion about the possible population-level effects of the UME. We also clarified the reasons why we have not incorporated the UME deaths into the population estimate. The final revised SAR maintains that the 2018 population estimate, which is a point estimate and a 95 percent confidence interval (7,520–10,280), is the best scientific information available. It also notes that the UME is primarily affecting one of the four management units (the Atlantic Coast unit) and that manatees in the other three units are generally exhibiting positive population growth.

Comment 2: The Service should publish a revised SAR when the updated abundance estimate, including total mortality from the ongoing UME, is published.

Response: The draft SAR discussed that the FWC was in the process of collecting new aerial survey data to be used to produce an updated abundance estimate. We have updated the SAR to note that surveys of the East Coast of Florida were flown in December 2022 and that we still expect an updated abundance estimate to be available in 2023 or 2024.

Comment 3: The SAR relies on productivity rates that do not account for recent threats to the Florida manatee, including the ongoing UME and degradation of seagrass habitat across the State. Not only are the adult survival rates significantly impacted by the death of nearly 2,000 Florida manatees in 2021 and 2022 combined, but starvation stressors have likely impacted productivity rates as well. The death of large numbers of female manatees—at least 415 identified in 2021 alone—also exacerbates productivity concerns by decreasing calving rates and orphaning existing calves.

Response: The survival and reproductive rates reported in the draft SAR are the best scientific information available. The draft SAR acknowledged the ongoing UME but stated the effects of the UME were currently unknown. The final revised SAR retains these same conclusions; however, we recognize that the effects of the UME on survival and reproductive rates on the population stock as a whole are still being assessed, and we anticipate additional information on the effects of the UME in the future. Estimates of reproductive rates (and survival rates) are most often obtained and tracked using long-term longitudinal studies of known identifiable manatees. Therefore, it likely will be several years before data are available from the UME area that can be used for this purpose. The Florida Fish and Wildlife Conservation Commission is working on an Integrated Population Model (IPM) for the Atlantic Coast management unit that will provide additional insight into the effects of the UME on population size and other important metrics, including adult survival and reproductive rates. The IPM will use the new abundance estimates that are currently being developed, so it will likely be 2024 or later before the IPM results will be available. Even if available information indicated reduced reproduction in the area of the UME, this information would not affect the maximum theoretical net productivity rate, which is what is used in the calculation of Potential Biological Removal (PBR).

Comment 4: The ongoing UME underscores the numerous threats of habitat destruction facing the Florida manatee, which should be adequately reflected in the SAR. Seagrasses on which manatees depend are increasingly being destroyed. Warm water refugia where manatees overwinter are threatened. Coastal development also threatens manatee habitat.

Response: The draft SAR discussed all sources of human-caused mortality and serious injury, as well as the ongoing UME and all other causes of mortality. The *Habitat Issues* section contains discussions of the importance of warm water sites and available

forage, and current and future threats. The final revised SAR includes updated and additional discussion about the ongoing UME, and it meets all of the informational requirements of the MMPA section 117.

Comment 5: While the 2022 SAR for the Florida manatee stock provides a cursory overview of these harms, the population estimate of 8,810 is an unacceptable starting point for recovery discussions. Section 117 of the MMPA requires the Service to prepare a SAR to help accomplish the goal of maintaining marine mammal stocks at their optimum sustainable population levels. SARs must be based on the best scientific information available, and there exists ample information to incorporate deaths from the ongoing UME. Moreover, the Service should immediately revise the SAR when the forthcoming abundance estimate is released, as it will provide substantial new information regarding the Florida manatee stock. This new information will be critical when developing ongoing strategy for manatee conservation, including determining potential biological removal levels.

Response: As mentioned above, this final revised SAR contains the best scientific information available and meets the informational requirements of the MMPA. To the extent the commenter is referring to conservation strategies and other documents for the manatee, which are governed by different legal authorities and standards, such as the ESA, these comments are beyond the scope of this action. In addition, the MMPA requires the annual review of stock assessments for strategic stocks, which includes the manatee. During the Service's annual review, if we determine that new information (such as new abundance estimates) indicate that a revision is warranted, we will propose a revision. This final revised SAR includes additional discussion about possible population-level effects of the UME.

Comment 6: While Slone *et al.* 2017 serves as a recent source of information to support the page 2 statement that manatee movements outside of Florida appear to be

increasing, we recommend citing accessible publications such as Pabody *et al.* 2009 and Hieb *et al.* 2017.

Response: Pabody, *et al.* 2009 was already included in the draft SAR. We have added a citation to Hieb *et al.* 2017 in this final revised SAR.

Comment 7: Regarding Florida manatee regional management units on page 2 (and illustrated on page 3), the border for the Atlantic Coast unit and Upper St. Johns River unit should be described as the Clay–Putnam Counties line as opposed to Palatka.

Response: We did not make the suggested change because the commenter did not provide a citation supporting this change. The boundary described in the SAR is the same boundary referenced in the 2001 Florida Manatee Recovery Plan and FWC’s Final Biological Status Review of the Florida Manatee (Haubold *et al.*, 2006).

Comment 8: If addressing implementing regulations, we recommend reference to the Florida Manatee Sanctuary Act (Ch. 379.2431(2), Florida Statute) as this regulatory and conservation authority provides for the management actions as defined in the 2007 FWC Manatee Management Plan.

Response: Although the Florida Manatee Sanctuary Act was referenced in the draft SAR in the *Status of Stock* section, we added another reference as suggested in the *Stock Definition and Geographic Range* section of the final revised SAR.

Comment 9: The minimum population estimate (N_{\min}) for the Florida manatee stock is calculated using the equation for Minimum Population Estimate provided in NMFS (2016): $N_{\min} = N / \exp(0.842 \times [\ln(1 + [CV(N)]^2)]^{1/2})$. We recommend including an explanation of what the Minimum Population Estimate implies. For example, the Minimum Population Estimate provides a conservative estimate of the 20th percentile of the population distribution.

Response: The recommended explanation is an accurate statement, but we did not add additional information to the final revised SAR in response to this comment because

we do not believe most readers need the SAR to provide that detailed of an explanation. Readers wanting a more thorough understanding of the basis for the equation for the minimum population estimate or what it signifies can refer to the cited source for more information.

Comment 10: The most recent adult-survival-rate analysis for the Florida manatee identifies mean adult survival rates of over 97 percent. It should be noted that these are baseline rates and do not include episodic factors affecting survival, including events such as red tide and significant periods of cold temperature.

Response: As with Comment 9, the recommended additional information is an accurate statement, but we did not add more explanation to the final revised SAR in response to this comment because we do not believe most readers need the SAR to provide that detailed of an explanation. The SAR notes that the reported rates are baseline mean adult survival and reproductive rates that were based on data collected over a 20+ year period. Readers wanting a more thorough understanding of how the rates are calculated can refer to the cited source for more information.

Comment 11: We request additional research citations for this chapter: Reinert *et al.* 2017: Entanglement in and ingestion of fishing gear and other marine debris by Florida manatees, and Bassett *et al.* 2020: Quantifying sublethal Florida manatee-watercraft interactions by examining scars on manatee carcasses.

Response: We added a citation to Bassett *et al.* 2020 in the final revised SAR and in the References. Reinert *et al.* 2017 was already cited in the draft SAR, but we added an additional citation to it in the suggested section.

Comment 12: Manatee mortality data are available and verified through December 2020 with preliminary mortality data available through 2021 and much of 2022. We recommend inclusion of this recent data within this chapter, including the associated tables, or explanation of why the SAR does not report this data.

Response: We added additional discussion in the SAR to address this comment and explain the data range used in the tables. The data summarized in the tables and discussed in the SAR are based on confirmed mortality data. Preliminary data are not included because these data are subject to change as to cause of death and other attributes. In discussions of the ongoing UME, the reported total number of deaths does include preliminary data (to provide context on the scale of the event), but no assessments of these data have been made as to cause of death. The mortality and rescue data summarized in the SAR include data through 2018, the last full year for which confirmed mortality data were available from the FWC at the time this report was prepared and submitted to the Atlantic SRG for peer review. After peer review, FWC provided confirmed mortality data covering all of 2019 and 2020. Due to both the timing of when these data became available and to changes FWC made to their data collection protocols, these data are discussed but are not included in the tables.

Comment 13: Manatee mortality should include a description of other cause of death (COD) categories, including Verified Not Necropsied and Undetermined. Reported data on human-related COD is likely an underestimate as there may be cases of human-related death that were not quantified if a carcass was not recovered, necropsied, or a COD was unable to be determined. We recommend including two columns in table 4 to distinguish between Other and Undetermined COD categories as opposed to “Other.”

Response: Descriptions of other causes of death were included in the draft SAR, as was a citation to the FWC website that describes all the categories; however, we have added additional explanation and discussion in the final revised SAR, particularly for the Verified Not Necropsied (VNN) category. The draft SAR explained that the cause of some deaths cannot be determined and that the true number of deaths (total or in any given category) is not known because the number of carcasses that are not found or reported is unknown. We did not split the “Other” category as suggested given the focus

of the SAR is on human-related deaths; no human-related deaths are included in the VNN and Undetermined categories that comprise the “Other” category used in the SAR.

Comment 14: The statement referring to carrying-capacity and cited as Provancha *et al.* 2012 does not consider the thermal quality of warm-water sites. We recommend further discussion on insufficient or non-dependable warm water as a limiting factor in addition to physical constraints such as vegetation.

Response: Warm-water issues were discussed in the draft SAR in sufficient detail, consistent with the requirements of the MMPA. Readers wanting a more thorough understanding of potential carrying capacity issues can refer to the cited sources for more information.

Comment 15: We recommend including additional citations on red tide effects on manatees: Walsh *et al.* 2015: Sublethal red tide toxin exposure in free-ranging manatees (*Trichechus manatus*) affects the immune system through reduced lymphocyte proliferation responses, inflammation, and oxidative stress, and Flewelling *et al.* 2005: Red tides and marine mammal mortalities.

Response: We added citations to both papers in the final revised SAR.

Comment 16: From information reported by the St. Johns River Water Management District, and based on 2021 aerial survey seagrass data, the Indian River Lagoon has lost approximately 75 percent of seagrass acreage since 2009 with 40 percent loss of seagrass acreage from 2019 through 2021.

Response: We did not revise the information contained in the draft SAR because the commenter did not provide a supporting citation. Although the information included in the SAR is not the same as the above comment, the source we cited is recent (2022) and from the same agency referred to in the comment, and both descriptions support the same finding: that significant seagrass losses have occurred in this area.

References

In accordance with section 117(b)(1) of the MMPA, we include in this notice a list of the sources of information or published reports upon which we based the revised SAR. The Service consulted technical reports, conference proceedings, refereed journal publications, and scientific studies prepared or issued by Federal agencies, nongovernmental organizations, and individuals with expertise in the fields of marine mammal biology and ecology, population dynamics, modeling, and commercial fishing practices. These agencies and organizations include the Service, the U.S. Geological Survey, the National Oceanic and Atmospheric Administration, the Puerto Rico Department of Natural and Environmental Resources, the Georgia Department of Natural Resources, the Florida Fish and Wildlife Conservation Commission, Hubbs Sea World Research Institute, the Gulf and Caribbean Fisheries Institute, the Caribbean Stranding Network, and Mote Marine Laboratory. In addition, the Service consulted publications such as the Journal of Wildlife Management, Marine Mammal Science, Marine Pollution Bulletin, Marine Technology Society Journal, Wildlife Monographs, Gulf and Caribbean Research, Journal of Zoo and Wildlife Medicine, Molecular Ecology, and Molecular Ecology Notes, as well as other refereed journal literature, technical reports, and data sources in the development of these SARs. A complete list of citations to the scientific literature relied on for each of these SARs is available on the Federal eRulemaking portal (<https://www.regulations.gov>) under Docket No. FWS-R4-ES-2022-0031 or upon request from the Florida Ecological Services Field Office or Caribbean Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Authority

The authority for this action is the Marine Mammal Protection Act of 1972, as amended (16 U.S.C. 1361 *et seq.*).

Signing Authority

Martha Williams, Director of the U.S. Fish and Wildlife Service, approved this

action on March 24, 2023, for publication. On March 24, 2023, Martha Williams authorized the undersigned to sign the document electronically and submit it to the Office of the Federal Register for publication as an official document of the U.S. Fish and Wildlife Service.

Madonna Baucum,
Chief, Policy and Regulations Branch,
U.S. Fish and Wildlife Service.

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